

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A method of measuring X-ray reflectivities of a thin film layer on the surface of a sample comprising the steps of:
 - generating a probe beam of X-rays;
 - focusing said probe beam on the surface of said sample such that various X-rays within the focused probe beam create a range of angles of incidence with respect to said surface;
 - measuring the intensity of various X-rays as a function of position within the probe beam as reflected with the positions of the X-rays within said reflected probe beam corresponding to specific angles of incidence with respect to said surface; and
 - comparing the measurements of the intensity of the various X-rays within said reflected probe beam to corresponding measurements of an unattenuated probe beam made with the sample removed from the X-ray pathway.
2. (original) A method as recited in claim 1, wherein said corresponding measurements of an unattenuated probe beam are made using an X-ray detector located at least in part below the plane of the sample.
3. (original) A method as recited in claim 1, wherein said corresponding measurements of an unattenuated probe beam are made using an X-ray detector located both above and below the plane of the sample.
4. (original) A method as recited in claims 1, 2, or 3, further wherein said measurements of the intensity of the various X-rays within said reflected probe beam are normalized by dividing by said corresponding measurements of the unattenuated probe beam made with the sample removed from the X-ray pathway.

5. (original) A method as recited in claims 1, 2, or 3, further wherein the correspondence between the reflected probe beam and the unattenuated probe beam is obtained by locating a point of symmetry for the two probe beams within the region of small angles of incidence to the plane of the sample such that X-ray reflection from the sample is nearly total.

6. (original) A method of measuring the characteristics of a thin film layer on the surface of a sample comprising the steps of:

generating a probe beam of X-rays;

focusing said probe beam on the surface of said sample such that various X-rays within the focused probe beam create a range of angles of incidence with respect to said surface;

measuring the intensity of various X-rays as a function of position within the probe beam as reflected with the positions of the X-rays within said reflected probe beam corresponding to specific angles of incidence with respect to said surface;

comparing the measurements of the intensity of the various X-rays within said reflected probe beam to corresponding measurements of an unattenuated probe beam made with the sample removed from the X-ray pathway; and

determining the characteristics of said thin film layer based upon the intensity measurements

7. (original) A method as recited in claim 6, wherein said corresponding measurements of an unattenuated probe beam are made using an X-ray detector located at least in part below the plane of the sample.

8. (original) A method as recited in claim 6, wherein said corresponding measurements of an unattenuated probe beam are made using an X-ray detector located both above and below the plane of the sample.

9. (original) A method as recited in claims 6, 7, or 8, further wherein said measurements of the intensity of the various X-rays within said reflected probe beam are

normalized by dividing by said corresponding measurements of the unattenuated probe beam made with the sample removed from the X-ray pathway.

10. (original) A method as recited in claims 6, 7, or 8, further wherein the correspondence between the reflected probe beam and the unattenuated probe beam is obtained by locating a point of symmetry for the two probe beams within the region of small angles of incidence to the plane of the sample such that X-ray reflection from the sample is nearly total.

Claims 11-62. (cancelled).